

nation. The writer has made a natural mistake in supposing that the expedition is under naval control and will sail under naval discipline. This of course is erroneous. The Admiralty has no responsibility and the expedition must be regarded as a private venture. As it stands at present, the expedition is to leave our shores without a man on board who has had any experience in the conduct of a scientific expedition of any importance; and without a commander who has had any experience in the control of a ship. Can the Royal Society bear the onus of responsibility which such a so-called "scientific" expedition will entail upon them?

"Dr. J. W. Gregory, who was appointed scientific leader of the British Antarctic Expedition and as such recently contributed to *NATURE* a plan of the scientific work, has now stated that he cannot accept service under the regulations laid down. This resignation, for so it has been regarded by the committee, is a very severe blow to the prospects of the expedition, or at least to the scientific results that might have been expected. Some, perhaps, prophesied failure when they saw the attempt that was made from the first to place the expedition under Admiralty control and naval discipline. Friction and consequent heat became inevitable when the committee proceeded to appoint two leaders—a naval and a scientific—without defining their powers from the outset. It is well known that the meetings of this committee have been a series of fights between the geographers and naval men as opposed to the purely scientific men; and Dr. Gregory has over and over again been on the point of resigning. We understand that the ultimate dispute was over the question of landing, which Dr. Gregory wished to have fixed as a main object of the expedition, and not left entirely to the discretion of an unscientific commander. But the actual cause of rupture is immaterial. The position, thanks to the naval manœuvres, has always been an impossible one for the scientific men. While Dr. Gregory's absence in Australia has placed him at a disadvantage, Sir Clements Markham may be congratulated; but the committee will have a difficulty in finding a head for the scientific staff with half the competence of Dr. Gregory."

#### NOTES.

CAPTAIN E. W. CREAK, F.R.S., has been created a Companion of the Order of the Bath "in recognition of his services while holding the appointment of Superintendent of Compasses in the Hydrographic Department of the Admiralty."

THE Bakerian Lecture of the Royal Society will be given by Prof. J. Dewar, on Thursday next, June 13. The subject will be "The Nadir of Temperature, and allied Problems."

WE regret to see the announcement of the death of Prof. J. Viriamu Jones, F.R.S., principal and professor of physics in the University College of South Wales and Monmouthshire. Prof. Jones was only forty-five years of age.

THE subjects of two of the evening discourses to be delivered during the forthcoming meeting of the British Association at Glasgow have been decided. Prof. W. Ramsay will lecture on "The Inert Constituents of the Atmosphere" on Friday, September 13, and Mr. Francis Darwin will lecture on "The Movements of Plants" on Monday, September 16. As already announced, the lecture to workmen on Saturday, September 14, will be delivered by Mr. H. J. Mackinder.

AN International Congress of Historical Science will be held at Rome in April of next year. There will be a section for the history of science, including especially medical science, and all who are interested in this or other sections of the work of the Congress are invited to communicate with Prof. P. Giacosa, Istituto di Materia Medica, Corso Raffaello 30, Turin.

PROF. WILLIAM GALLOWAY, professor of mining at the University College of South Wales, at Cardiff, has been appointed to investigate on behalf of the Government the cause of the Senghenydd explosion. Prof. Galloway has stated to a

correspondent that it was unquestionably a coal-dust explosion, but more he could not say at present. As to the scope of the inquiry, he said specific points had been suggested by the Home Secretary, and the object of the scientific investigation would be to devise means to prevent a recurrence of the accident.

LORD GEORGE HAMILTON has written to Sir Alfred Hickman, M.P., ex-president of the British Iron Trade Association, explaining why certain contracts were placed by Indian railway companies with American firms. In the course of his remarks he says:—"You seem to think that orders have only gone abroad because those who gave them did not understand their business. I wish that it were so. The competition we have to face is founded on something much more formidable and substantial. Chemical research, concentration of capital, thorough technical education, improved industrial organisation have made in recent years greater advance in America than here; it is with the product of these combinations and not with the assumed stupidity of Indian officials that the British engineer has to contend." Sir Alfred Hickman replies in a long letter, which appeared in Tuesday's *Times*, but his remarks refer more to alleged imperfections in American work and the value of protection than to the cause of competition. He asks what evidence exists of "superior chemical research, technical education, &c.," and says, "I deny the 'chemical research'" mentioned by Lord George Hamilton. Apparently Sir Alfred Hickman attaches no importance to such reports as those prepared for the University of Birmingham and the Manchester Technical Education Committee as to the position of technical education in the United States; and he can scarcely be familiar with American scientific and technical publications or he would not "deny the chemical research" with so free a mind. It seems pretty clear, however, that the India Office official who wrote Lord George Hamilton's letter to Sir Alfred Hickman was not the one who expressed views about the chemistry at Coopers Hill and aided the efforts which have strangled the technical education of the officers of the Indian Public Works Department.

THE annual meeting of the Victoria Institute will be held on Monday next, June 10. Sir Robert Ball, F.R.S., will deliver an address.

THE Melbourne correspondent of the *Times* states that Prof. Baldwin Spencer's ethnological expedition, which has arrived at Alice Springs, 1000 miles south of Port Darwin, has obtained valuable photographs of the native war and other dances and sacred ceremonies.

SOLITARY specimens of the Hoopoe are not unfrequently seen on Lundy Island in the spring. A correspondent asks whether any reader of *NATURE* can explain their appearance or give any information about their nearest abiding place.

WE learn from *Science* that at the recent annual meeting of the American Academy of Arts and Sciences it was unanimously voted to award the Rumford medal to Prof. Elihu Thomson "for his inventions in electric welding and lighting." The Academy has granted to Prof. Theodore W. Richards, of Harvard University, the sum of 500 dollars from the income of the Rumford fund in aid of a research upon the Thomson-Joule effect.

AT the annual meeting of the Institution of Electrical Engineers on Thursday last, it was announced that the council had awarded the following premiums, among others, for papers and communications:—The Institution premium, value 25*l.*, to Mr. M. O'Gorman for his paper entitled "Insulation on Cables"; the Paris Electrical Exhibition premium, value 10*l.*, to Mr. W. Duddell for his paper entitled "On Rapid Variations of the Current through the Direct-Current Arc"; the Fahie premium,

value 10*l.*, to Mr. A. C. Eborall for his paper entitled "Some Notes on Polyphase Substation Machinery"; and an extra premium, value 10*l.*, to Mr. J. S. Highfield for his paper entitled "Storage Batteries in Electric Power Stations controlled by Reversible Boosters." Salomons scholarships, value 50*l.* each, have been awarded, one to Mr. J. D. Griffin and one to Mr. H. A. Skelton. The sum of 2000*l.*, bequeathed by the late Prof. Hughes to found the David Hughes scholarship in the Institution, has been received from the executors, and the council has determined that, for the present, the manner of award shall be the same as that of the Salomons scholarship. Mr. C. J. Hopkins has been selected as the David Hughes scholar for the present year, the amount of the scholarship being 50*l.*

THE celebration of the ninth jubilee of the University of Glasgow will commence on Wednesday next. The following programme has been arranged:—Wednesday, June 12, 10.30 a.m., commemoration service in the cathedral (University officials, guests and delegates are expected to attend in their academic robes or official costume); 2.30 p.m., reception of guests and delegates by the chancellor in the Bute Hall, and presentation of addresses; 8.30 p.m., "at home," Queen Margaret College; 9 p.m., students' *gaudeamus* in University Union. June 13, 10 a.m., orations in the Bute Hall: Lord Kelvin on "James Watt"; Prof. Smart on "Adam Smith"; followed by conferring of honorary degrees; 3 p.m., opening of the new botanical buildings by Sir Joseph Hooker; 4 to 6 p.m., garden party at Queen Margaret College; 9.30 to 11.30 p.m., conversazione in the Bute Hall, Library and Museum. June 14, 11 a.m., oration in Bute Hall: Prof. Young on "William Hunter," followed by organ recital; 3 to 5 p.m., "at home" in Art Galleries, International Exhibition; 7 p.m., banquet by corporation in municipal buildings; 9 p.m., students' ball in the Bute Hall. June 15, 10 a.m. to 5 p.m., excursion on the Firth of Clyde. Delegates will be present from Austria-Hungary, Belgium, France, Germany, Holland, Italy, Russia, Sweden, Switzerland and from Australia, Canada and India. All the Universities in the United Kingdom will be represented, as well as scientific and other institutions.

THE number of experiments performed on living animals in England and Scotland during the year 1900, under licences granted for that purpose, is given in a parliamentary paper just issued. Mr. G. D. Thane, inspector under the Cruelty to Animals Act, states in his report that the total number of licensees was 247, of whom 63 performed no experiments; that licences and certificates had been granted and allowed only upon the recommendation of persons of high scientific standing; that the licensees were persons who, by their training and education, were fitted to undertake experimental work and to profit by it; and that all experimental work had been conducted in suitable places. The total number of experiments was 10,839, few of which were in any serious degree painful. The experiments performed under licence alone, or under the certificate "permitting experiments in illustration to lectures," together amounting to 1299, were unattended by pain because the animal was kept under anæsthetic during the whole of the experiment, and must, if the pain was likely to continue after the effect of the anæsthetic had ceased, or if any serious injury had been inflicted on the animal, be killed before it recovered from the influence of the anæsthetic. In 586 additional experiments the operations were performed under anæsthetics, from the influence of which the animals were allowed to recover. The operations were performed aseptically, and the healing of the wounds, as a rule, took place without pain. If the antiseptic precautions failed and suppuration occurred, the animal was required to be killed. These operations as

now practised were seldom, if ever, followed by pain. It is stated that in a large proportion of the inoculations the result was negative—that was, the animal did not exhibit any ill effects, and therefore did not suffer any pain. That was especially the case with many inoculations for purposes of diagnosis, with the great majority of the inoculations performed for the testing of articles of food, and with many of the inoculations made for the purpose of standardising antitoxic serum—namely, those cases in which the antitoxin was sufficiently powerful to neutralise the amount of toxin injected, so that the latter had no action. Only a small proportion of the inoculations practised were followed by disease or poisoning.

SINCE the publication in *NATURE* (vol. lvii. p. 563) of an article upon photographic surveying, much progress has been made in the application of the methods of photography. Valuable information on the subject was given in a lengthy paper on the field-work of photographic surveying as applied in Canada, by Mr. A. O. Wheeler, of the Topographical Surveys staff of the Canadian Government, at the recent London meeting of the Institution of Mining Engineers. In Canada, he stated, the principal surveys upon which the method has been employed are (1) survey of the Rocky Mountains by Mr. J. J. McArthur and Mr. W. S. Drewry, (2) survey in connection with the establishment of the boundary line between Alaska and the Yukon district by Mr. W. F. King, (3) survey of the Alberta watershed for irrigation purposes, (4) surveys in the Yukon district, on the Columbia River and in the Kootenay mining district, and (5) a survey of the Crow's Nest coalfield. The scale upon which the Canadian surveys have been mapped is as follows:—Rocky Mountains survey, 1 to 20,000; Alberta watershed and Crow's Nest survey, 1 to 30,000; Alaska surveys, 1 to 80,000. The larger the scale the greater is the detail required for the drawing. The office work occupies at least twice the time of the field work. To offset this the field work can be accomplished in half the time required for any other method. In the discussion that followed the reading of the paper, Mr. Bennett H. Brough gave particulars of the application of photographic methods to the survey of mining properties in the Carrara marble district, in Mexico and in the Styrian iron ore fields. The rapidity with which the field work was carried out was, he pointed out, a conspicuous advantage in unhealthy malarious districts which a mine surveyor was often called upon to survey.

SINCE the trials of H.M.S. *Viper*, when the wonderful speed of thirty-seven knots per hour was attained, until quite recently further data have not come to hand; but (says *Engineering Magazine* for May) a vessel is now under construction at Dumbarton (Messrs. W. Denny and Bros.) 250 ft. long, 30 ft. beam, and 17 ft. 9 in. depth, which will be propelled by Mr. Parsons' marine turbines, and will be arranged as follows:—There will be three (for going ahead) turbines, each on its own shaft, the high pressure turbine will drive the centre shaft and the two low pressure turbines the two outer shafts. The two "astern" turbines (which propel the ship backwards) are placed inside the exhaust ends of the two low pressure turbines. By this arrangement in going "ahead" steam is expanded five times in the high pressure turbine and again twenty-five times in the two low pressure turbines, giving a total expansion of "125-fold" instead of about "16-fold" which is obtained with triple expansion reciprocating engines. The vessel under construction is for passenger traffic, which necessitates a regular high speed, and there is no doubt that with a ship of this class the best and the most useful results will follow, and not only will she be the pioneer of Mr. Parsons' marine compound turbine in the mercantile marine, but also she will embody all the advantages claimed over ships driven with reciprocating engines, which may

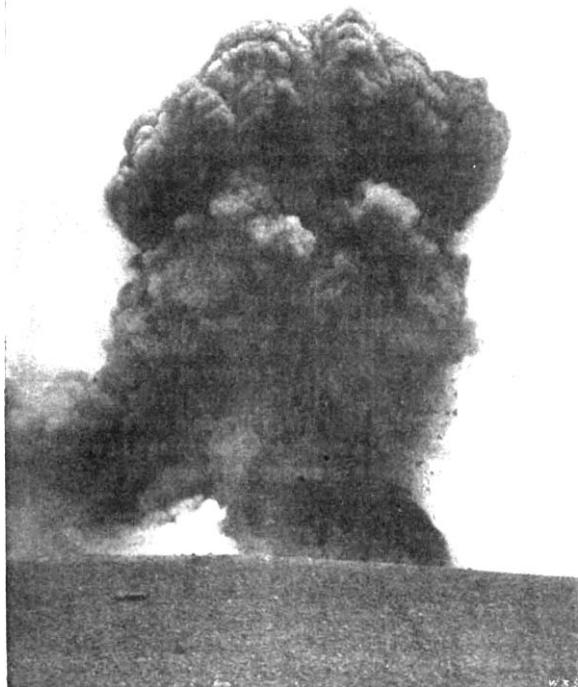
be summed up as follows:—(1) Increased speed for the same boiler-power; (2) absence of vibration; (3) increased cabin accommodation (due to the smaller space required for machinery); (4) less upkeep in machinery and smaller engine-room staff. Time alone will prove the increased speed of this vessel and the validity of these advantages claimed over her commercial predecessors.

AN interesting description of the period of activity of Vesuvius in April and May of last year is given by Prof. R. V. Matteucci in the *Bullettino* of the Italian Seismological Society (vol. vi. No. 7), and one of the illustrations accompanying the paper is here reproduced. The eruption commenced on April 24, and lasted a month. There was no lava flow, but the explosions in the crater were very strong, and reached a maximum on May 9, when they were distinctly heard over almost the whole of Campania. The greatest height reached by the volcanic bombs and scoriae was about 540 metres from the bottom of the crater,

consists essentially of a series of graduated transparencies, a colour sensitometer, and a series of colours—each including one definite region of the spectrum. All these are on one plate and are arranged to show at a glance (1) sensitiveness of ordinary plates, (2) the added sensitiveness of isochromatic plates, (3) the further added sensitiveness of red sensitive plates, this last, being in two parts, distinguishing between the more and the less refrangible than the Fraunhofer line C. The graduated series gives a quantitative value to the colour tests; without it a series of exposures would be necessary, and the result even then would be indefinite. By a single exposure and development the screen gives a quantitative expression of all the properties of photographic plates that are generally of use. Moreover, the record thus obtained can be preserved for more critical examination at any future time, when exact measurement with a photometric arrangement or opacity meter will give results probably as accurate as could be obtained by any method of testing. A plate tester having these joint merits of simplicity and accuracy should prove of service to photographers who base their art upon scientific principles.

“PROSPECTING for Gold in County Wicklow” is the title of a paper by Mr. E. St. John Lyburn in the *Proceedings* of the Royal Dublin Society (vol. ix. new ser. part 4, 1901). The author gives the results of numerous assays of samples of quartz, grit, &c., and in one instance records 4 dwts. per ton from a specimen obtained near the summit of Croghan Kinshelagh. The owner of the estate unfortunately objected to prospecting and Mr. Lyburn had to abandon his work without settling whether or not Wicklow contains gold in payable quantity in the rocks. He observes that panning for gold is secretly carried on in the county and is apparently lucrative to those interested; and he urges further researches on Croghan Kinshelagh mountain, more especially at the junction of the diorite rocks and the Silurian formation.

THE Jurassic Brachiopoda of Cutch form the subject of an important monograph by Dr. F. L. Kitchin (*Mem. Geol. Surv. India*, ser. ix. vol. iii. part 1, 1900). The task undertaken by the author was one not unattended by difficulties, as many years have elapsed since the fossils were collected, and their geological horizons were not in all cases satisfactorily determined. He has, however, received much aid in deciding these matters from Prof. J. F. Blake, who not very long ago personally studied the region. A superficial glance at the plates would lead one to suppose that many British species of Inferior Oolite and Great Oolite Brachiopoda were represented, such as *Terebratula Phillipsi*, *T. globata*, *T. maxillata*, &c.; but although there are forms which appear to show affinity to British species belonging to different Jurassic divisions, yet such forms occur together in Cutch strata, and correlation becomes impossible when the forms on one horizon suggest Bajocian, Bathonian and Callovian ages. Most of the specimens now figured by Dr. Kitchin receive new names, even where the resemblance to a European form is great. This has been done in the belief that the application of the term “variety” is not admissible in cases where the direct relationship to the “species” either cannot be definitely proved or does not appear highly probable. It is satisfactory to learn with regard to Brachiopoda “that to a certain degree, the larger the number of individuals with which we have to deal, the fewer ‘species’ shall we find them to represent.” It would have been better if the author had had the benefit of a series of specimens from a more clearly established stratigraphical sequence, but that he has made the best use he could of the material will not be questioned, and his illustrations are excellent. The fauna as a whole has a distinct facies and is without precise parallel in the European area.



An explosion of Vesuvius in May, 1900.

and the largest block ejected had a volume of about twelve cubic metres and a weight of nearly thirty tons. The volume of material thrown out by the volcano during the months of April and May was estimated to have been about half a million cubic metres. For three days Prof. Matteucci remained near the crater of Vesuvius, and on one occasion was fortunate enough to witness an explosion which surrounded him with falling scoriae and lapilli without injuring him, though the eruption destroyed his photographic apparatus. His observations upon the appearance of the crater during incandescence and the character of the volcanic products are of much interest.

AN aid to the scientific pursuit of photography is afforded by the “Chapman Jones Plate Tester” produced by Messrs. Sanger Shepherd and Co. This new photographic accessory

THE Annual Report of the Royal Alfred Observatory, Mauritius, for 1899 has been issued. The chief meteorological feature of the year was the abnormal distribution of rainfall with regard to seasons. The greatest defects occurred in January and December, and the greatest excess in September. The mean rainfall at sixty-eight stations was 76.80 inches, the average amount being 79.23 inches. In possible connection with this we may mention that the deaths from plague were considerable in the months of October to December, following (as in Bombay) the coldest season and an exceptionally wet winter. The report is entirely satisfactory in all respects save one—for want of proper provision for the library, many valuable works are destroyed by rats and other vermin. The director is naturally seriously concerned at this unsatisfactory state of things.

CONSTANTLY increasing attention is being paid to practical entomology in the United States, and we have just received two new parts of the *Bulletin* of the New York State Museum, both of which relate primarily to agricultural entomology. No. 36, vol. vii. (March 1901) contains the sixteenth Report of the State Entomologist on injurious and other insects of the State of New York; and No. 37, vol. viii. (September 1900) contains an illustrative descriptive catalogue of some of the more important injurious and beneficial insects of New York State. These are both by Dr. Ephraim Porter Felt, State Entomologist, and are similar in character to other American Reports which we have recently noticed. We may call attention to two special points in these. The State of Massachusetts seems to be relaxing its campaign against the gipsy moth in despair, and its spread to other States is greatly dreaded. After all the nonsense written in the popular papers about the "kissing bug," it is amusing to find that, according to Dr. Felt, it is neither more nor less than our own wheel bug, *Opsicoetus* (or *Reduvius*) *personatus*, which is common in Europe in outhouses, &c.

THE *Bulletin* of the American Museum of Natural History for 1900 (vol. xiii.) contains an unusual amount of matter interesting to the student of vertebrates, both living and fossil. Some of these papers, such as Prof. Osborn's studies of the European and American fossil rhinoceroses, have been already noticed in these columns, owing to the fact of separate copies having been received. The volume opens with an account, by Dr. J. A. Allen, of the caribou, or reindeer, recently described by Mr. Seton-Thompson under the name of *Rangifer moutanus*. The author confirms the distinctness of this form, which is from British Columbia and the North-west Territories, and compares it with other American reindeer, giving a number of excellent photographs of antlers.

IN another communication Dr. Allen gives some interesting notes on the so-called wood-bison of the neighbourhood of the Great Slave Lake, which he considers to be rightly regarded as a distinct race of the species, although it probably once intergraded with the typical bison of the plains. Mr. F. Russell, who hunted these animals in 1894, informed the author that the herd at that time comprised only a few hundred head. "They cannot be hunted in summer," he writes, "as the country which they inhabit is an impenetrable mosquito-infested wooded swamp at that season. . . . They can only be killed by stalking in mid-winter, when their pelage is at its best." This is so far satisfactory, and affords some hope for the survival of the herd, which the Canadian Government is endeavouring to protect. Additional notes on both the reindeer and the bison of the North-western Territories and neighbouring districts are communicated by Mr. A. J. Stone in his report of a collecting trip.

PALÆONTOLOGISTS will find much matter for study in two articles communicated to the aforesaid *Bulletin* by Mr. R. P.

Whitfield, the one dealing with certain Arctic fossils collected by the Peary expedition, and the other with the type-specimens of the marine cretaceous lizard described by Cope as *Mosasaurus maximus*. It is inferred that this monster could not have been less than eighty feet in length; portions of the jaws are figured for the first time. Monmouth county, New Jersey, is their place of origin. The Arctic fossils are of Silurian age, and differ in some cases specifically from their representatives in the New York district. In regard to some of the corals, the author writes as follows:—"The specimens are from calcareous clay and are finely weathered, indicating a locality where fine collections of fossils might be obtained with little trouble. The specimens have been collected from the surface and are mostly of small size and imperfect, so much so that those representing undescribed forms are too poor for description and illustration, though sufficient to determine the geological position.

ACCORDING to its Report for the past year, the Zoological Society of Philadelphia has started a new departure in regard to membership which may be commended to the attention of similar bodies at home. This is the admission of junior members, who pay an annual subscription of one pound (five dollars) up to the age of eighteen, when they are eligible for the full membership. In reporting the construction of a new aviary in the gardens, the directors call attention to the reduction which has been found advisable in the size of the cages. This reduction "has resulted from the long experience of the Society in the effort to adjust the needs of animal life to the economical limitations which are forced upon most zoological collections formed upon a large scale. In many groups, as in parrots among birds, and in reptiles of sluggish habit, it has not been found that cages relatively extravagant, both in space and cost, have added observably to health or longevity; in fact, with parrots the best results have been reached in cages too small to induce the attempt to fly." It is added that the public are gainers by the new plan.

WE have received a copy of the *British Central Africa Gazette*, with a supplement containing a full reprint of meteorological observations taken thrice daily at Zomba, during February, 1901. The organisation under which these observations are made is under the direction of Mr. J. McClounie, head of the Scientific Department, and its inauguration has been largely due to the efforts of the British Association Committee on the climate of tropical Africa.

IN the April number of the *Zeitschrift für physikalische Chemie* is a paper by G. Bredig and K. Ikeda, continuing the work commenced by G. Bredig and M. v. Berneck on the "inorganic ferments." It was shown in the first paper that there is a remarkable analogy between the behaviour of a solution of colloidal platinum and the organic enzymes, especially those present in blood. The platinum solution, on account of its perfectly definite composition, lends itself readily to quantitative study, and the results of a very numerous set of determinations of its catalytic power in decomposing solutions of hydrogen peroxide are given. The most remarkable analogy worked out in the second paper is that just as minute traces of certain substances inhibit the catalytic action of the enzymes of the blood, so traces of the same or similar substances act as "poisons" to the colloidal platinum, the quantities necessary in some cases being extraordinarily small. Thus the strongest blood poison is hydrocyanic acid, and this is also the strongest "poison" for colloidal platinum; thus the presence of only 0.0014 milligram of prussic acid per litre was sufficient to reduce the activity of a certain platinum to one-half its original value. Other blood poisons, such as iodide of cyanogen, mercuric chloride, phosphorus and carbon monoxide, behave similarly towards the platinum solutions. There is no doubt that this

work will lead to more quantitative studies of the catalytic action of the enzymes proper, the importance of which in both animal and plant physiology is becoming every day more manifest.

SOME of the papers published in the reports and other volumes of the Smithsonian Institution are printed separately for sale or exchange. A classified list of the papers at present available has been issued, and students of all branches of science will find in it many publications of value.

THE additions to the Zoological Society's Gardens during the past week include a Rhesus Monkey (*Macacus rhesus*, ♀) from India, presented by Mrs. W. W. Baker; a Red-flanked Duiker (*Cephalophus rufilatus*, ♂) from West Africa, presented by Mr. Th. Le portier; two Crested Curassows (*Crax alector*) from Guiana, presented by Mr. Robert Thom; two Vulturine Eagles (*Aquila verreauxi*) from the Gwatyn District, Cape Colony, presented by Mrs. Joplin; a Derbyian Zonure (*Zonurus giganteus*) from South Africa, presented by Mr. W. Champion; a Blue and Yellow Macaw (*Ara ararauna*), a Brazilian Tortoise (*Testudo tabulata*) from South America, a Red-masked Conure (*Conurus rubrolarvatus*) from Ecuador, a Starred Tortoise (*Testudo elegans*) from India, two American Glass Snakes (*Ophiosaurus ventralis*) from Mexico, seven Stink-pot Mud Terrapins (*Cinosternum odoratum*), twelve Pennsylvanian Mud Terrapins (*Cinosternum pennsylvanicum*) from North America, deposited; three Mandarin Ducks (*Aix galericulata*) from China, purchased; a Thar (*Hemitragus jemlaica*, ♂), a White Stork (*Ciconia alba*), bred in the Gardens.

#### OUR ASTRONOMICAL COLUMN.

THE RECENT TOTAL ECLIPSE OF THE SUN.—From the *Comptes rendus* we learn that a French expedition under M. Binot made successful observations at the island of Réunion, near Mauritius, so that very valuable comparisons may be hoped for between these and the photographs obtained at the Royal Alfred Observatory further east.

A telegram from Pulkowa states that during the eclipse at Padang, six photographs were obtained through cirrus clouds, the form of the corona corresponding to that of minimum solar activity.

SNOW ON THE MOON'S SURFACE.—Several accounts have appeared in the daily Press stating that observers from the Harvard College Observatory working in Jamaica have obtained photographs of the moon which afford evidence of the existence of some variable substance, probably snow, on many of the mountain peaks. The astronomer, presumably Prof. W. H. Pickering, has taken photographs of the lunar disc under as varied conditions of lighting as possible during several nights, and the inference now drawn depends on the interpretation of the changes in appearance of the highest tips of the lunar craters. Up to the time of writing no direct confirmation of these observations has been received in this country.

OXFORD UNIVERSITY OBSERVATORY.—The twenty-sixth annual report of the Savilian professor of astronomy to the board of visitors contains an account of the work of the observatory from 1900 May 1 to 1901 April 30. Prof. Turner states that the staple work during the year has been the measurement and reduction of the plates for the Astrographic Catalogue. This has been partly hindered by the building of the new dome and the arrangements for observing the minor planet Eros during its recent opposition, and also the Nova Persei. However, seventy-eight plates have been completed during the year, making a total of 783 in five years, out of the 1180 required. For the Eros determinations 114 plates were obtained, involving 757 different exposures, about half of these having been measured.

The instruments used in India (1898) and Algiers (1900) were taken to Sumatra by Mr. Newall, who will endeavour to make similar determinations with them of the brightness and polarisation of the corona, so that data on a uniform scale from all three coronas may be available for measurement.

All the instruments are in fairly good working order; the new dome by Messrs. Cooke and Sons gives every satisfaction.

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#### THE ROYAL OBSERVATORY, GREENWICH.

ON Saturday last the Astronomer Royal presented his report for the past year to the Board of Visitors of the Royal Observatory. The weather was not all that could be desired on such an occasion, but the rain, which fell later in the afternoon was not sufficiently heavy to mar the proceedings.

Among the numerous guests were M. and Madame Löwy from Paris.

Below will be found a brief *résumé* of the report:—

##### *Transit Circle.*

The sun, moon, planets and fundamental stars have been regularly observed on the meridian as in previous years. The number of transits, the separate limbs being counted as one observation, amounts to 10,938.

The number of stars observed in 1900 is 4787.

The apparent correction for discordance between the nadir observations and stars observed by reflexion for 1900 was found to be  $-0^{\circ}39$ . The results of recent years are as follows:—

	Mean.	Range in Yearly Means.
1880-1885	$-0^{\circ}34$	From $-0^{\circ}29$ to $-0^{\circ}45$
1886-1891	$+0^{\circ}03$	$0^{\circ}12$ to $+0^{\circ}09$
1892-1900	$-0^{\circ}30$	$-0^{\circ}25$ to $-0^{\circ}41$

##### *The New Altazimuth.*

This instrument is in good working order, and the new chronograph has worked satisfactorily. Some inconvenience has, however, been caused by breakages in the system of spider lines, which has a larger span than is really necessary.

The instrument has been used during the year mainly as a reversible transit-circle in the meridian in four positions for the better investigation of systematic errors, and for observation of the Eros reference stars and fundamental stars.

Throughout the year 6937 observations have been made, including those for the determination of the chief instrumental errors.

The 28-inch refractor has been used throughout the year for micrometric measurements of double stars.

With the 26-inch Thompson equatorial, the most important work has been the photographing of the planet Eros during the recent opposition for determination of the solar parallax. 255 photographs have been obtained, 197 of which show the planet satisfactorily.

##### *Astrographic Equatorial.*

Up to May 10, 682 plates have been taken on 167 nights; 72 of these, for various reasons, have, however, been rejected. In addition to the plates for the chart, 7 photographs were secured for the adjustment of the instrument, two of standard areas, 294 of Eros, 139 of Nova Persei, and 3 of Comet *b* 1900.

The report states that 144 chart plates have been copied on glass, and during the year 81,000 measures of pairs of images (6m. and 3m.), as well as of the diameters of the 6m. images, have been made. The number of plates measured in the twelve months in two positions of the plates is 137.

The measurement of the plates is now completed for 1412 square degrees out of 2087 (which is the area of the Greenwich zone), so that two-thirds of the whole work of measurement has now been done.

##### *Spectroscopic and Heliographic Observations.*

With the Thompson equatorial and the photographic spectroscope mounted on it, 22 photographs of the spectra of Capella, Regulus, Arcturus, Spica,  $\alpha$  and  $\mu$  Ursae Majoris with comparison spectra have been obtained, and some preliminary measures of these give satisfactory results. The spectroscope is now in good adjustment.

For the year 1900, Greenwich photographs have been selected for measurement on 146 days, and photographs from India and Mauritius (filling up gaps in the series) on 214 days, making a total of 360 days out of 365 on which photographs are at present available. The decline in the number of spots noticed in the last report has been continued, and the minimum may be considered as reached, no Greenwich photograph showing a spot since March 7.

##### *Magnetic Observations.*

The variations of magnetic declination, horizontal force and vertical force, and of earth currents, have been registered photographically, and accompanying eye observations of absolute